

2. (Once amended) The assay of Claim 1, wherein the amount of reporter adenylate kinase specifically associated with the analyte is substantially proportional to the amount of analyte.

3. (Once amended) The assay of Claim 1 wherein formation of ATP is measured using luciferin/luciferase.

4. (Once amended) The assay of Claim 1 for determining presence and/or amount of an analyte in a sample, comprising

exposing the sample to a reporter adenylate kinase coupled to a binding agent specific for the analyte, so that the reporter adenylate kinase is specifically associated with any analyte present in the sample;

removing reporter adenylate kinase that is not specifically associated with analyte;

exposing reporter adenylate kinase specifically associated with the analyte to ADP;

and

testing for formation of ATP,

wherein prior to addition of ADP residual adenylate kinase other than reporter adenylate kinase is substantially removed by heating.

5. (Once amended) The assay of Claim 1 comprising adding an ATPase to the analyte and removing the ATPase from the analyte prior to adding ADP.

6. (Once amended) The assay of Claim 5 wherein the ATPase is inactivated by heating the ATPase.

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8. (Once amended) The kit of Claim 7 further comprising an ATPase.

10. (Once amended) The assay of Claim 9, wherein substrate is converted into product by the thermostable enzyme and prior to addition of the substrate background compound identical to the product is removed.

11. (Once amended) The assay of Claim 10 wherein background compound identical to the product is removed by the action of enzyme or by thermal inactivation.

12. (Once amended) A conjugate comprising an antibody conjugated to a thermostable enzyme for use in the assay of Claim 1.

13. (Once amended) The conjugate of Claim 12, wherein the enzyme is an adenylate kinase.

14. (Once amended) The conjugate of Claim 12, wherein the antibody binds to an analyte selected from the group consisting of a protein, a microorganism, a peptide, a toxin, a hormone and a metabolite.

15. (Once amended) The conjugate of Claim 14 wherein the antibody binds to a prion protein.

Please add the following new claims 17-19:

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17. (New) A conjugate comprising an antibody conjugated to a thermostable enzyme for use in the assay of Claim 11.

18. (New) A conjugate comprising an antibody conjugated to a thermostable adenylate kinase, wherein the antibody binds to a prion protein.

19. (New) An assay for an analyte, comprising the steps:-

- (a) specifically associating the analyte with a thermostable reporter kinase;
- (b) washing to remove endogenous non-thermostable kinase and thermostable reporter kinase not specifically associated with the analyte;
- (c) heating to inactivate endogenous non-thermostable kinase not removed by step (b); and
- (d) adding ADP and testing for formation of ATP.

In the Abstract:

Please add the Abstract submitted herewith on a separate page.